

# *Basic Electrical and Electronics Engineering*

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# *Basic Electrical and Electronics Engineering*

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## **Module-I: Electric Circuits, Electromagnetism and Instruments**

Electric Circuits: Basic definitions, types of elements, Ohm's Law, resistive networks, inductive networks, capacitive networks, Kirchoff's Laws, series parallel circuits and star delta transformations, simple problems, Faraday's law of electromagnetic induction; Instruments: Basic principles of indicating instruments, permanent magnet and moving coil and moving iron instruments.

## **Module-2: DC Machines**

Principle of operation of DC generator, EMF equation, principle of operation of DC motors, torque equation, types of DC machines, applications, three point starter.

## **Module-3: Alternating Quantities and AC Machines**

Sinusoidal AC Voltage, average and RMS values, form and peak factor, concept of three phase alternating quantities; Transformer: Principle of operation, EMF equation, losses, efficiency and regulation.

Three phase induction motor: Principle of operation, slip, slip torque characteristics, efficiency, applications; Alternator: Principle of operation, EMF equation, efficiency, regulation by synchronous impedance method.

## **Module-4: Semiconductor Diode and Applications**

Semiconductor diode: P-N Junction diode, symbol, V-I characteristics, Half wave rectifier, full wave rectifier, bridge rectifier and filters, diode as a switch, Zener diode as a voltage regulator.

## **Module-5: Bipolar Junction Transistor and Applications**

Bipolar Junction: DC characteristics, CE, CB, CC configurations, biasing, load line, transistor as an amplifier.

# *Basic Electrical and Electronics Engineering*

## **Chapter-I: Electric Circuits, Electromagnetism and Instruments**

1.0	Objectives	2
1.1	Introduction	2
1.2	Basic Definitions	2
1.3	Types of Elements	9
1.4	Ohm's Law	10
1.4.1	Limitations of Ohm's Law	11
1.4.2	Applications of Ohm's Law	11
1.4.3	Solved Problems	11
1.5	R-L-C Parameters	15
1.5.1	Resistance (R)	15
1.5.2	Inductor (L)	19
1.5.3	Concept of Capacitor	22
1.5.4	Comparison of Active and Passive Components	25
1.5.5	Important Characteristics of the Basic Elements	26
1.5.6	Solved Examples	26
1.6	Kirchhoff's current and Voltage Law's	31
1.6.1	Kirchhoff's Current Law	32
1.6.2	Kirchhoff's Voltage Law	33
1.6.3	Application of Kirchhoff's Circuit Laws in the Analysis of Circuits	35
1.6.4	Solved Problems	35
1.7	Series and Parallel Networks	42
1.7.1	Resistance in Series	42
1.7.2	Voltage Divider Rule	45
1.7.3	Resistance in Parallel	46
1.7.4	Series-Parallel Combination	48
1.7.5	Division of Current in Parallel Branch Circuit	49
1.7.6	Solved Problems	52
1.7.7	Comparison of Series and Parallel Circuits	69
1.7.8	Series and Parallel Inductors	70
1.7.9	Solved Examples	72
1.7.10	Series and Parallel Capacitors	73
1.7.11	Solved Examples	75
1.8	Star to Delta or Delta to Star Transformations	76
1.8.1	Delta-Star Transformation	78
1.8.2	Star-Delta Transformation	79

1.8.3	Conversion of Delta into Equivalent Star	81
1.8.4	Conversion of Star into Equivalent Delta	82
1.8.5	Solved Problems	84
1.9	Faraday's Laws of Electromagnetic Induction	97
1.9.1	Electromagnetic Induction	97
1.9.2	Lenz's Law	99
1.10	Measurement and Instrument	101
1.10.1	Necessary Requirements for Measuring an Instrument	102
1.10.2	Methods of Measurement	102
1.11	Classification of Measuring Instruments	102
1.11.1	Advantages of Electronic Measurement	105
1.12	Principle of Operation Electrical Measuring Instruments	105
1.12.1	Essential Requirements of Indicating Type Instruments	106
1.13	Permanent-magnet moving-coil (PMMC) instrument	108
1.14	Moving Iron Instruments	111
1.14.1	Moving-iron Attraction Type Instrument	111
1.14.2	Repulsion Type Moving-iron Instrument	113
1.14.3	Advantages & Disadvantages of mi Instruments	114
1.15	Summary	115
1.16	Review Questions	115
1.17	Multiple Choice Questions	119
<b>Chapter-II: DC Machines</b>		
2.0	Objectives	124
2.1	Introduction	124
2.2	Faraday's Laws	124
2.3	Induced E.M.F	125
2.3.1	Dynamically Induced E.M.F	126
2.3.2	Statically Induced E.M.F	127
2.4	Lenz's Law	130
2.5	Fleming's Left Hand Rule	130
2.6	Working Principle of DC Generator	130
2.6.1	Fleming's Right Hand Rule	131
2.7.	Constructional Features of a DC Machine	132
2.7.1	Description of Parts of DC Machines	133
2.8	Terminology In Armature Windings	136
2.9	Types of Armature Windings	138
2.9.1	Lap Winding	139
2.9.2	Wave Winding	139
2.9.3	Difference between Lap winding and Wave Winding	140
2.10	E.M.F Equation Of DC Generator	140

2.11	Types of DC Generators	146
2.11.1	Separately Excited D.C Generators	146
2.11.2.	Self-excited Generators	147
2.11.2.1	Series-wound Generators	147
2.11.2.2	Shunt-wound Generator	148
2.11.2.3.	Compound-Wound Generator	149
2.12	Characteristics of Series Shunt and Compound Generators	151
2.12.1	Solved Examples	154
2.13.	Working Principle of D.C Machine as a Motor	160
2.14	Back E.M.F.	161
2.14.1	Significance of Back E.M.F.	163
2.15	Torque Developed in DC Motor	164
2.16	Types of DC Motors	166
2.16.1	DC Shunt Motors	167
2.16.2	DC Series Motors	168
2.16.3	DC Compound Motors	169
2.17	DC Motor Characteristics	170
2.18	Speed of A DC Motor	178
2.18.1	For Series motor	179
2.18.2	For Shunt Motor	179
2.19	Applications	179
2.19.1	Solved Examples	180
2.20	Necessity of Starter	187
2.20.1	Three-Point Starter	188
2.21	Summery	190
2.22	Review Questions	190
2.23	Objective Type Questions	192
<b>Chapter-III: Alternating Quantities and Transformer</b>		
3.0	Objectives	196
3.1	Introduction	196
3.2	Important Definitions	196
3.3	Comparison of Alternating Current and Direct Current	200
3.4	The Sinusoidal Waveform	200
3.4.1	Significance of Sine Wave	202
3.4.2	General format of sine wave for Current or Voltage (or) Production of Alternating Voltage or Current	202
3.4.3	Different Forms of E.M.F Equation	203
3.5	Instantaneous Values	204
3.6	RMS (or) Virtual (or) Effective Value of AC	204
3.7	Average (or) Mean Value Of Ac	206
3.8	Form Factor	207

3.9	Peak Factor	<b>208</b>
3.9.1	Peak Value (or) Time Period of A.C	<b>208</b>
3.10	Phase Relations	<b>209</b>
3.10.1	Phase	<b>209</b>
3.10.2	Phase Difference	<b>210</b>
3.11	Solved Problems	<b>212</b>
3.12	Advantages of Alternating current over Direct Current	<b>223</b>
3.13	Disadvantages of A.C over D.C	<b>224</b>
3.14	Transformer	<b>225</b>
3.14.1	Constructional Details of Transformer	<b>225</b>
3.14.2	Principle & Operation of Transformer	<b>227</b>
3.15	EMF Equation of a Transformer	<b>228</b>
3.16	Ideal Transformer	<b>230</b>
3.17	Transformer on no load	<b>232</b>
3.18	Transformer on Load	<b>233</b>
3.19	Types of Transformers	<b>235</b>
3.20	Auto-Transformer	<b>237</b>
3.21	Power (or) Energy Losses in a Transformer	<b>238</b>
3.22	Efficiency of a Transformer	<b>240</b>
3.22.1	Condition for Maximum Efficiency	<b>240</b>
3.22.2	All-day Efficiency	<b>241</b>
3.23	Regulation of a Transformer	<b>242</b>
3.24	Solved Examples	<b>243</b>
3.25	Summary	<b>250</b>
3.26	Review Questions	<b>251</b>
3.27	Multiple Choice Questions	<b>253</b>
<b>Chapter-4: AC Machines</b>		
4.0	Objectives	<b>258</b>
4.1	Introduction	<b>258</b>
4.2	Induction Motor	<b>258</b>
4.2.1	Three Phase Induction Motor	<b>259</b>
4.2.2	Construction of 3-Phase Induction Motors	<b>259</b>
4.2.3	Comparison Between Slip Ring and Squirrel Cage Rotors	<b>263</b>
4.2.4	Applicatuions of Squirrel Cage and Slip Ring Rotors	<b>263</b>
4.3	Working of 3-Phase Induction Motors	<b>264</b>
4.4	Rotating Magnetic Field	<b>265</b>
4.4.1	Production of Rotating Magnetic Fields	<b>265</b>
4.5	Synchronous Speed ( $N_s$ )	<b>269</b>
4.6	SLIP and its importance	<b>270</b>
4.6.1	Rotor Current Frequency	<b>271</b>

4.7	Torque Developed by an Induction Motor	279
4.8	Torque- Slip Characteristics	280
	4.8.1 Torque Ratios	284
	4.8.2 Solved Examples	286
4.9	Efficiency of an induction motor	287
	4.9.1 Solved Examples	288
4.10	Principle of Synchronous Motor	289
	4.10.1 Effect of Varying the Excitation of a Synchronous Motor	290
	4.10.2 Applications of Synchronous Motor	291
	4.10.3 Choice of Particular AC Motor	291
	4.10.4 Advantages and Disadvantages of Synchronous Motor	292
	4.10.5 Solved Examples	292
4.11	Application of Induction Motors	295
4.12	Principle of Alternator	296
	4.12.1 Construction of Alternator	296
	4.12.2 Difference between Salient and Cylindrical Type of Rotor	298
4.13	Working Principle Of Alternator	299
	4.13.1 Mechanical and Electrical Angle	300
4.14	Types of Alternators	301
	4.14.1 Classification of Alternator with Respect to Rotating Field	302
4.15	EMF Equation and Frequency of Alternators	303
	4.15.1 E.M.F. Equation of An Alternator	303
	4.15.2 Frequency of Alternator	305
	4.15.3 Solved Examples	305
4.16	Alternator Efficiency	306
4.17	Synchronous Impedance	307
	4.17.1 Determination of Regulation by Synchronous Impedance Method	307
4.18	Sumary	310
4.19	Review Questions	310
4.20	Multiple Choice Questions	312
<b>Chapter-5: Semiconductor Diode and Applications</b>		
5.0	Objectives	316
5.1	Introduction	316
5.2	PN Junction	317
5.3	Qualitative Theory of P-N Junction	318
	5.3.1 Depletion Region	320
	5.3.2 Barrier Potential	321
	5.3.3 Energy Band Diagrams of PN Junction	322
5.4	PN Junction As A Diode	326
5.5	No Bias Across The P-N Junction ( $V_D = 0V$ )	328
5.6	Biassing P-N Junction	329



5.6.1	P-N Junction with Forward Bias ( $V_D > 0V$ )	329
5.6.2	P-N Junction with Reverse Biased ( $V_D < 0V$ )	331
5.7	Voltage-current (V-i) Characteristics of Diode	332
5.8	Law of Junction	333
5.9	Diode Current Equation (No Derivation)	334
5.10	Applications of PN Junction Diode	337
5.11	Power Supplies	338
5.12	Regulated Power Supply	338
5.13	Rectifiers	339
5.14	Qualitative Treatment of Half Wave Rectifier	341
5.14.1	Advantages And Disadvantages Of Hwr	347
5.14.2	Problems on Half-wave Rectifier	348
5.15	Full-wave Rectifier	352
5.15.1	Advantages and Disadvantages of FWR	358
5.15.2	Problems on Full-wave Rectifier	358
5.16	Bridge Rectifier	361
5.16.1	Advantages and Disadvantages of Bridge Rectifier	364
5.16.2	Problems on Bridge Rectifier	364
5.17	Comparison of Rectifier Circuits	366
5.18	Bridge Rectifier Vs Centre-tapped Circuit	367
5.19	Filters	368
5.20	Types Of Filters	369
5.20.1	Capacitor Filter	369
5.20.2	Inductor Filter	374
5.20.3	LC (or) L-section Filter	378
5.20.3.1	Necessity of Bleeder Resistance $R_B$	380
5.20.4	Multiple L-Section Filter	381
5.20.5	CLC (or) $\pi$ -Section Filter	382
5.20.6	Multiple- $\pi$ Filter	383
5.20.7	Advantages and Disadvantages of $\pi$ -filter	384
5.20.8	Features of L-section and $\pi$ -filters	384
5.20.9	Comparison of Filters	384
5.21	Solved Problems On Filters	385
5.22	Zener Diode As Voltage Regulator	389
5.23	Basic Voltage Regulator	391
5.23.1	Comparison of Shunt and Series Voltage Regulators	393
5.24	Summary	394
5.25	Review Questions	394
5.26	Multiple Choice Questions	397
<b>Chapter-6: Bipolar Junction Transistor and Applications</b>		
6.0	Aims And Objectives	400
6.1	Introduction	400

6.2	Transistors	<b>400</b>
6.2.1	Construction of Transistors	<b>401</b>
6.2.2	Transistor Terminals	<b>402</b>
6.2.3	Operation of Transistors	<b>403</b>
6.3	PNP and NPN transistors	<b>403</b>
6.4	Current Components in BJT	<b>405</b>
6.5	Early Effect	<b>407</b>
6.6	Transistor as a Switch	<b>409</b>
6.7	Advantages and Disadvantages of Transistors	<b>410</b>
6.8	Problems	<b>411</b>
6.9	Transistor Biasing	<b>414</b>
6.10	Bias Stabilization	<b>415</b>
6.10.1	Stability Factor	<b>417</b>
6.10.2	Thermal Runaway	<b>418</b>
6.10.3	Fixed Bias	<b>418</b>
6.10.4	Emitter-Stabilized Bias Circuit	<b>420</b>
6.10.5	Voltage-Divider Bias	<b>422</b>
6.10.6	Comparison of Basic Bias Circuits	<b>424</b>
6.11	Transistor Leakage Current	<b>424</b>
6.12	BJT Static Characteristics	<b>426</b>
6.12.1	Common Base Characteristics	<b>427</b>
6.12.2	Common Emitter Characteristics	<b>430</b>
6.12.3	Common Collector Characteristics	<b>433</b>
6.12.4	Current Gains ( $\alpha$ , $\beta$ and $\gamma$ ) in CB, CE and CC	<b>434</b>
6.12.5	Comparison of CB, CE and CC Configuration	<b>480</b>
6.13	Complete Hybrid Equivalent Model	<b>438</b>
6.13.1	Advantages of h-parameter	<b>440</b>
6.14	CB Configuration by using HYBRID Parameters	<b>440</b>
6.15	CE Configuration by using HYBRID Parameters	<b>441</b>
6.16	CE Configuration by using HYBRID Parameters	<b>442</b>
6.16.1	CE, CB and CC Configurations based on Hybrid Parameters	<b>443</b>
6.17	Load Line Analysis(AC and DC)	<b>444</b>
6.18	AC Load Line	<b>445</b>
6.19	Problems	<b>446</b>
6.20	Transistor as an Amplifier	<b>448</b>
6.21	Amplifying Action of a Transistor	<b>449</b>
6.22	Summary	<b>451</b>
6.23	Review Questions	<b>451</b>
6.24	Multiple Choice Questions	<b>453</b>